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10/522,022	01/21/2005	Akira Kuramori	ION2.012APC	1950

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EXAMINER

PANI, JOHN

ART UNIT	PAPER NUMBER
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3709

NOTIFICATION DATE	DELIVERY MODE
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07/09/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary

Application No.

10/522,022

Applicant(s)

KURAMORI ET AL.

Examiner

John Pani

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/21/05 and 4/20/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 4, 8, and 12 are objected to because of the following informalities:

In line 2, it is suggested to insert –activity—after “target work”. Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 5-8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 5 is directed to nonstatutory descriptive material in the form of a “computer-executable program” which consists merely of process steps. See MPEP §2106.01. “When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.”

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

For example, in claims 1, 5, and 12, it is unclear whether "which is opening and closing jaws of the test subject" is meant to indicate that the masseter muscle is actually opening and closing the jaws of the test subject, or whether it is merely stated as a description of masseter muscles in general, as the claim appears to be a direct translation from a foreign language. NOTE: For purposes of art rejections it will be interpreted to be a description of the general function of the masseter muscle.

In addition, claims 1-3, 5-7, and 9-11 contain long strings of prepositional phrases with no punctuation that make it difficult to determine which word is being modified by which phrase. For example, in claims 2, 6, and 10, it is unclear what is being "excluded" from what.

35 USC § 112, 6th Paragraph

6. A claim limitation will invoke 35 U.S.C. 112, sixth paragraph, if it meets the following 3-prong analysis:

- (A) The claim limitations must use the phrase "means for" or "step for."
- (B) The "means for" or "step for" must be modified by functional language; and

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(C) The phrase "means for" or "step for" must not be modified by sufficient structure, material or acts for achieving the specified function.

Claims 3-6 and 9-12 invoke 35 U.S.C. 112, sixth paragraph, as they meet the three-prong test above; therefore the following claim limitations are being treated as invoking 35 U.S.C 112, sixth paragraph.

For art rejection purposes the claim limitations in claim 1:

- a. Means for receiving a myoelectric signal
- b. Means for judging stress

Have been interpreted as covering the following corresponding respective structures described in the specification.

- a. Myoelectric potential signal input module **30**
- b. Stress judgment module **35**

Claim Interpretations

7. In light of 112, 6th paragraph invocation, and the above associated 112, 2nd paragraph rejections, the claims are rejected on prior art as best understood. For the purpose of art-based rejections the means for receiving and means for judging have been given their broadest interpretation. The specification does not describe specific structure with the exception of saying that **30** and **35** may be either programs run by the CPU, or as an electronic circuit.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1,5, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 5,195,531 to Bennett (Bennett).

Bennett teaches:

In reference to Claims 1, 5, and 9

A stress judging apparatus, program, and method comprising a myoelectric potential signal input means (60, see col. 5 lines 45-65) that receives a myoelectric potential signal from a masseter muscle of a test subject (col. 6 lines 1-3) during a target work activity performed through a movement of a muscle independent of a movement of the masseter muscle (for example, movement in the frontalis muscles); and stress judging means ("second algorithm for determining 'stress'", which runs in calculating means 60 of the computer, see col. 6 lines 50-58) for judging stress from the myoelectric potential signal showing a change in the movement of the masseter muscle which appears when the target activity acts as a stressor on the test subject (The algorithm would determine stress from any source).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 1,⁴ 5,⁶ and 9,¹² are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002230699 to Okamoto et al. (Okamoto) in view of Bennett.

In reference to Claims 1, 5, and 9

Okamoto teaches a stress judging apparatus and method comprising a myoelectric potential signal input means ("transmit the detected signals to a measurer" [0022]) for receiving a myoelectric potential signal from a first muscle of a test subject (biceps, [0022]) during a target work activity performed through a second muscle independent (a leg muscle used in depressing the gas pedal) of a movement of the first muscle; and a stress judging means that judges stress ("load" is stress, the steps in [0034-0039] when stored and read from a computer storage medium are a stress judging means) from the myoelectric potential signal showing a change in movement of the first muscle that appears when the target work activity acts as a stressor on the test subject. The steps of the method can be stored and read from a storage medium ([0155]). Okamoto, however, does not mention the use of the masseter muscle.

Bennett teaches of a device for monitoring anesthesia adequacy in which stress of the patient is determined with a computer algorithm (see col. 6 lines 50-55) that uses measured EMG data from facial muscles including the masseter muscles (see col. 6 lines 1-5), because the facial muscles, including the masseter muscles, are a good indicator of stress, as many people show "a more tortured facial expression" (col. 6 lines 43-45) when under stress.

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the stress judging invention taught by Okamoto by

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measuring myoelectric potential from the facial muscles including the masseter, as taught by Bennet, because they are good indicators of stress as taught by Bennet, and so that the wires from the myoelectric potential signaling devices would not interfere with the drivers hands and arms.

In reference to Claims 4, 8, and 12

Okamoto in view of Bennett teaches a device, program, and method according to claims 1, 5, and 9, respectively, and Okamoto further teaches that steering a vehicle ("driving") is the target work.

12. Claims 2-4, 6-8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto in view of Bennett as applied to claims 1, 5, and 9, respectively above, and further in view of "Wearable and automotive systems for affect recognition from physiology" to Healey (Healey).

In reference to Claims 2, 3, 6, 7, 9 and 10

Okamoto in view of Bennett teaches a stress judging apparatus, program, and method, according to claims 1, 5, and 9, respectively, (See above), but does not mention excluding from a target period for stress judgment, a period of time during which the test subject performs a predetermined work activity that uses that masseter muscle independently of the work activity.

Healey teaches of a device and method for measuring stress in driving based on a variety of physiological signals including EMG (see pgs. 93-97), in which a video camera is used to capture the drivers facial expression (see pg. 97, paragraph 3). Researchers coded the videos by marking the times when the subject performed

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preselected activities such as talking (see pg. 105-106), as these events would affect recording values. In a similar setting of using an ambulatory physiological monitor for measuring stress, Healey suggests using vision algorithms to interpret video streams and automatically code the action states of the subject (see pg. 91).

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the device, method, and program taught by Okamoto by incorporating cameras and a vision algorithm for interpreting video streams and automatically coding the action states of the subject, as taught by Healey, and thereby excluding EMG events that were not caused by stress from the record of stress judgment.

In reference to claims 4, 8, and 12

Okamoto in view of Bennett and further in view of Healey teaches a device, program, and method according to claims 2-3, 6-7, and 11-12, respectively, and Okamoto further teaches that steering a vehicle ("driving") is the target work.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Pat. No. 6,233,472 to Bennett et al. discloses that EMG from facial muscles including the masseter is a good indicator of stress.

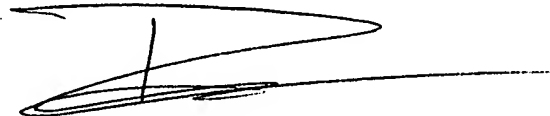
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Pani whose telephone number is 571-270-1996. The examiner can normally be reached on Monday-Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Bomberg can be reached on 571-272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JP 6/28/07

A handwritten signature in black ink, appearing to read 'THAO X. LE', with a long horizontal stroke extending to the right.

THAO X. LE
PRIMARY PATENT EXAMINER